

IN THE CLAIMS:

Claims 1-11 (Canceled).

12. (Currently Amended) A method comprising steps of:

establishing a bi-directional traffic trunk;

performing a loopback function on the established bi-directional traffic trunk; and

selecting a label switching router in a path traversed by the bi-directional traffic trunk; and activating a loopback procedure at the label switching router;

~~The method of claim 11,~~ wherein the step of activating a loopback procedure at a label switching router further includes a step of transmitting an in-band network management packet that contains a command for activating the loopback procedure.

13. (Currently Amended) A method comprising steps of:

establishing a bi-directional traffic trunk;

performing a loopback function on the established bi-directional traffic trunk; and

selecting a label switching router in a path traversed by the bi-directional traffic trunk; and activating a loopback procedure at the label switching router;

~~The method of claim 11,~~ wherein the step of activating a loopback procedure at a label switching router further includes a step of transmitting an in-band network command to the label-switching router instructing the label switching router to activate the loopback procedure.

14. (Canceled)

15. (Currently Amended) A method comprising steps of:

establishing a bi-directional traffic trunk; and

performing a loopback function on the established bi-directional traffic trunk;

~~The method of claim 1,~~ wherein the bi-directional traffic trunk is established in a multi-protocol label switching network.

Claims 16-19 (Canceled).

20. (Currently Amended) A method comprising steps of:

activating a bi-directional traffic trunk; and

performing a loopback function on the activated bi-directional traffic trunk;

~~The method of claim 16,~~ wherein the activated bi-directional traffic trunk is in a multi-protocol label switching network.

Claims 21-30 (Canceled).

31. (Currently Amended) A network comprising:

an originating router configured to transmit a packet downstream on a bi-directional traffic trunk; and

a loopback router configured to receive the packet and transmit the packet upstream towards the originating router on the bi-directional traffic trunk;

~~The network of claim 22,~~ wherein the originating router is a label edge router.

32. (Currently Amended) A network comprising:

an originating router configured to transmit a packet downstream on a bi-directional traffic trunk; and

a loopback router configured to receive the packet and transmit the packet upstream towards the originating router on the bi-directional traffic trunk;

~~The network of claim 22,~~ wherein the loopback router is at least one of a label edge router and an intermediate label switching router.

33. (Currently Amended) A network comprising:

an originating router configured to transmit a packet downstream on a bi-directional traffic trunk; and

a loopback router configured to receive the packet and transmit the packet upstream towards the originating router on the bi-directional traffic trunk;

~~The network of claim 22~~, wherein the packet is an in-band network management packet.

34. (Currently Amended) A network comprising:

an originating router configured to transmit a packet downstream on a bi-directional traffic trunk; and

a loopback router configured to receive the packet and transmit the packet upstream towards the originating router on the bi-directional traffic trunk;

~~The network of claim 22~~, wherein the bi-directional traffic trunk is in a multi-protocol label switching network.

Claims 35-38 (Canceled).

39. (Currently Amended) A method comprising steps of:

receiving a packet travelling downstream on a bi-directional traffic trunk;

transmitting the received packet upstream on the bi-directional traffic trunk; and

~~The method of claim 35, further comprising a step of determining the received packet's next hop using a loopback label forwarding entry;~~

wherein the bi-directional traffic trunk is in a multi-protocol label switching network.

40. (Previously Presented) The method of claim 39, further comprising a step of maintaining a table of loopback label forwarding entries.

41. (Previously Presented) The method of claim 40, wherein the step of maintaining a table further includes a step of maintaining the table of loopback label forwarding entries for the duration the loopback procedure is activated.

42. (Canceled).

43. (Currently Amended) A method comprising steps of:

receiving a packet traveling downstream on a bi-directional traffic trunk;

transmitting the received packet upstream on the bi-directional traffic trunk, and

~~The method of claim 42, further including a step of determining whether the label switching router receiving the packet is a loopback label switching router for the received packet;~~

wherein the bi-directional traffic trunk is in a multi-protocol label switching network, and wherein the step of receiving a packet further includes receiving the packet at a label switching router, and the receiving label switching router is any one of a label edge router and an intermediate label switching router.

44. (Currently Amended) A method comprising steps of:

receiving a packet traveling downstream on a bi-directional traffic trunk;

transmitting the received packet upstream on the bi-directional traffic trunk; and

~~The method of claim 35, further including a step of:~~

determining whether the received packet is a loopback in-band network management packet;

wherein the bi-directional traffic trunk is in a multi-protocol label switching network.

45. (Canceled)

46. (Canceled).

47. (Currently Amended) A router comprising:

a plurality of ports, one port of the plurality of ports receiving a packet traveling downstream on a bi-directional traffic trunk; and

processing circuitry processing the packet and forwarding the packet to a selected port of the plurality of ports for transmission to a next hop upstream on the bi-directional traffic trunk;

~~The router of claim 46, wherein the processing circuitry identifies an incoming label for the received packet and replaces the identified incoming label with an incoming~~

label corresponding to a received packet ~~travelling~~ traveling upstream on the bi-directional traffic trunk.

48. (Previously Presented) The router of claim 47, wherein the processing circuitry includes a memory that stores routing information, and the processing circuitry determines the next hop upstream using the stored routing information associated with the replaced label.

49. (Previously Presented) The router of claim 48, wherein the routing information is next hop label forwarding entries.

50. (Currently Amended) A router comprising:

a plurality of ports, one port of the plurality of ports receiving a packet traveling downstream on a bi-directional traffic trunk; and

processing circuitry processing the packet and forwarding the packet to a selected port of the plurality of ports for transmission to a next hop upstream on the bi-directional traffic trunk;

~~The router of claim 46,~~ wherein the processing circuitry includes a memory that stores loopback label forwarding entries.

51. (Previously Presented) The router of claim 50, wherein the processing circuitry identifies an incoming label for the received packet and determines the next hop upstream using a stored loopback label forwarding entry associated with the identified incoming label.

52. (Currently Amended) A router comprising:

a plurality of ports, one port of the plurality of ports receiving a packet traveling downstream on a bi-directional traffic trunk; and

processing circuitry processing the packet and forwarding the packet to a selected port of the plurality of ports for transmission to a next hop upstream on the bi-directional traffic trunk;

~~The router of claim 46~~, wherein the router is a label switching router in a multi-protocol label switching network.

53. (Previously Presented) The router of claim 52, wherein the processing circuitry determines whether the received packet is a loopback in-band network management packet.

54. (Previously Presented) The router of claim 53, wherein the processing circuitry determines whether the label switching router is a loopback label switching router for the received loopback in-band network management packet.

Claims 55-60 (Canceled).

61. (Currently Amended) A method comprising steps of:
constructing a packet at a router;
transmitting the packet downstream on a bi-directional traffic trunk from the
router constructing the packet;
receiving the packet at a router; and
determining whether to perform a loopback procedure at the router receiving the
packet;
wherein the router constructing the packet and the router receiving the packet are
label switching routers and ~~The method of claim 60~~, wherein the router constructing the packet is an edge router and the router receiving the packet is any one of an edge router and an intermediate router.

62. (Currently Amended) A method comprising steps of:
constructing a packet at a router;
transmitting the packet downstream on a bi-directional traffic trunk from the
router constructing the packet;
receiving the packet at a router; and

determining whether to perform a loopback procedure at the router receiving the packet

wherein the router constructing the packet and the router receiving the packet are label switching routers and ~~The method of claim 60~~, wherein the routers are in a multi-protocol label switching network.

63. (Canceled).

64. (Canceled).

65. (Currently Amended) A method comprising steps of:

constructing a packet at a router;

transmitting the packet downstream on a bi-directional traffic trunk from the router constructing the packet;

receiving the packet at a router; and

determining whether to perform a loopback procedure at the router receiving the packet; and

~~The method of claim 64, further including a step of:~~

performing the loopback procedure at the label switching router receiving the packet, when the received packet is a loopback packet and the router receiving the packet is the loopback router for the received packet

wherein

the step of determining whether to perform a loopback procedure further includes a step of determining whether the received packet is a loopback packet, and

the step of determining whether to perform a loopback procedure further includes a step of determining whether the router receiving the packet is a loopback router for the received packet.

66. (Previously Presented) The method of claim 65, further comprising a step of:

transmitting the received packet to a next hop upstream on the bi-directional traffic trunk, towards the router constructing the packet, after performing the loopback procedure.

Claims 67-76 (Canceled).

77. (Currently Amended) A network comprising:

a bi-directional traffic trunk;

an originating router constructing a packet and transmitting a packet downstream on the bi-directional traffic trunk; and

a receiving router receiving the packet and determining whether the receiving router is a loopback router for the received packet

wherein the originating router and the receiving routers are label switching routers, and

~~The network of claim 76~~, wherein the originating label switching router is an edge router and the receiving router is any one of an edge router and an intermediate router.

78. (Currently Amended) A network comprising:

a bi-directional traffic trunk;

an originating router constructing a packet and transmitting a packet downstream on the bi-directional traffic trunk; and

a receiving router receiving the packet and determining whether the receiving router is a loopback router for the received packet;

~~The network of claim 69~~, wherein the bi-directional traffic trunk is in a multi-protocol label switching network.

79. (Currently Amended) A network comprising:

a bi-directional traffic trunk;

an originating router constructing a packet and transmitting a packet downstream on the bi-directional traffic trunk; and

a receiving router receiving the packet and determining whether the receiving router is a loopback router for the received packet;

~~The multi-protocol label switching network of claim 69,~~ wherein the packet is an in-band network management packet.

80. (Currently Amended) A method comprising steps of:

establishing a bi-directional traffic trunk; and

performing a loopback function on the established bi-directional traffic trunk

~~The method of claim 1~~ wherein the loopback function is performed by

transmitting one or more loopback packets from a first node to a second node,

transmitting the loopback packets from the second node to the first node,
and

includes the additional steps of storing packet data at the first node, and comparing that stored data with the loopback packet.